Abstract

Control charts are normally used in Statistical Quality Control (SPC) to monitor and diagnose a shift in process of production. They are widely applicable for controlling, computing and improving features of quality in manufacturing statistic, telecommunication, epidemiology, economics and finance and in other areas of application. Attribute control charts are necessary tools to observe the statistical process having discrete data. p charts and np charts are famous to monitor the defective items having binomial distribution.

This study proposes a new np attribute control chart by using a multiple dependent state sampling (MDS) plan. The decision about the process remaining in control is supported by foregoing subset or on the states of forthcoming subsets. The values of Average Run Length (ARL) are computed by using computer simulation method. The R software is used for simulation method.

To check the efficiency of planned control chart, for different shift sizes, the average run length (ARL) is computed. The proposed np control chart is compared with traditional np chart given in literature. The comparison is made by using industrial example in which control limits are computed for proposed attribute control chart and traditional attribute control chart and plotted them on control charts and by computing the ARL of control charts. The results show that our proposed attribute control chart shows the more precise result when it is used to monitor the process proportion and it is also concluded that proposed control chart have smaller out of control (ARL_1) as compared to traditional np control chart. The results, overall show that our proposed control chart has better performance than the traditional attribute control chart.